

WALCZAK ET AL.
"Method And System for Validating A
Mobile Station Location Fix"
Atty. Docket No. CS10560

Appl. No. 09/769,122
Confirm. No. 5562
Examiner D. Le
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In the claims:

1. (Currently Amended) A method for validating a non-network based location fix of a mobile station in a communications network, comprising:

generating a non-network based location fix of the mobile station;

~~[generating a network based location fix of the mobile station];~~

evaluating the validity of the non-network based location fix of the mobile station by comparing the non-network based location fix with a prior ~~[the]~~ network based location fix.

2. (Previously Presented) The method of Claim 1, generating the non-network based location fix includes receiving global positioning system signals at the mobile station.

3. (Currently Amended) The method of Claim 1, ~~[the communications network having a plurality of base stations,]~~ generating the prior network based location fix by measuring a time related parameter of signals received at the mobile station from several base stations neighboring the mobile station.

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4. (Currently Amended) The method of Claim 1, translating the prior network based location fix and the non-network based location fix into a common format prior to comparing the prior network and non-network based location fixes.

5. (Currently Amended) The method of Claim 1, generating the non-network based location fix of the mobile station in longitude and latitude coordinates, converting the prior network based location fix to longitude and latitude coordinates before comparing the prior network based location fix with the non-network based location fix.

6. (Currently Amended) The method of Claim 1, evaluating the validity of the non-network based location fix by determining whether the non-network based location fix is within a specified range of the prior network based location fix.

7. (Currently Amended) The method of Claim 6, defining the specified range based on an estimated velocity of the mobile station and a time interval between the generation of the prior network based location fix and the non-network based location fix.

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8. (Currently Amended) The method of Claim 1, the communications network having a plurality of base stations,
generating the prior network based location fix by measuring at the mobile station several base station signals neighboring the mobile station,
evaluating the validity of the non-network based location fix by determining whether the non-network based location fix is within a specified range of the prior network based mobile station location fix.

9. (Currently Amended) The method of Claim 1, ~~[generating a plurality of network based location fixes of the mobile station,]~~ evaluating the validity of the non-networked based location fix by comparing it to at least one of ~~[the]~~ a plurality of prior network based location fixes.

10. (Original) The method of Claim 9, evaluating the validity of the non-network based location fix by determining whether the non-network based location fix is closer to a less recently generated network based location fix than it is to a more recently generated network based location fix.

11. (Original) The method of Claim 1,
~~[generating a plurality of network based location fixes of the mobile station,]~~

estimating a future location fix of the mobile station based on ~~[the]~~ a plurality of ~~[the]~~ prior network based location fixes,

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evaluating the validity of the non-networked based location fix by determining whether the non-network based location fix is within a specified range of the estimated location fix.

12. (Currently Amended) A method for validating a satellite positioning system based location fix of a satellite positioning system enabled cellular mobile station in a cellular communications network, comprising:

generating a satellite positioning system based location fix of the mobile station;

~~[generating a network based location fix of the mobile station;]~~

evaluating the validity of the satellite positioning system based location fix by comparing the satellite positioning system based location fix to ~~[the]~~ a prior network based location fix.

13. (Currently Amended) The method of Claim 12, generating the prior network based location fix by measuring at the mobile station a time related parameter of signals received from a plurality of cellular base stations of the cellular communications network neighboring the mobile station.

14. (Currently Amended) The method of Claim 12,
evaluating the validity of the satellite positioning system based location fix by determining whether the satellite positioning system based location fix is within a specified range of the prior network based location fix,

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defining the specified range based on an estimated velocity of the mobile station and a time interval between [the] generation of the prior network based location fix and the satellite positioning system based location fix.

15. (Currently Amended) The method of Claim 12,
[~~generating a plurality of network based location fixes of the mobile station, storing the plurality of network based location fixes,~~]
evaluating the validity of the satellite positioning system based location fix by comparing it to at least one of [the] a plurality of prior network based location fixes.

16. (Currently Amended) The method of Claim 12, [~~generating a plurality of network based location fixes of the mobile station,~~] ordering a [the] plurality of prior network based location fixes by applying a corresponding time of acquisition attribute thereto,
evaluating the validity of the satellite positioning system based location fix by comparing the satellite positioning system based location fix with the plurality of time stamped prior network based location fixes.

17. (Currently Amended) The method of Claim 12, [~~generating a plurality of network based location fixes of the mobile station,~~] evaluating the validity of the satellite positioning system based location fix by determining

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whether it is nearer to a more recent network based location fix than it is to a less recent network based location fix.

18. (Original) The method of Claim 17,
estimating a future location of the mobile station by extrapolating
along an estimated path of the mobile station,
evaluating the validity of the satellite positioning system based
location fix by determining whether the satellite positioning system based
location fix is within a specified range of the estimated location fix.

19. (Currently Amended) The method of Claim 12,
generating a plurality of prior network based location fixes by
measuring at the mobile station a time related parameter of signals received
from a plurality of cellular base stations of the cellular communications
network neighboring the mobile station,
evaluating the validity of the satellite positioning system based
location fix by comparing the satellite positioning system based location fix
with at least one of the plurality of prior network based location fixes.

20. (Original) The method of Claim 12, generating a subsequent
satellite positioning system based location fix of the mobile station if a prior
satellite positioning system based location fix is invalid.

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21. (Original) A method for validating a location fix of a mobile station, comprising:

generating a plurality of location fixes of the mobile station;
evaluating the validity of a recently generated location fix of the mobile station by comparing the location fix for which the validity determination is required to a previously generated mobile station location fix.

22. (Original) The method of Claim 21, evaluating the validity of the location fix for which the validity determination is required by determining whether it is within a specified range of the previously generated location fix.

23. (Original) The method of Claim 22, defining the specified range based on an estimated velocity of the mobile station and a time variable.

24. (Original) The method of Claim 21, evaluating the validity of the location fix for which the validity determination is required by determining whether it is closer to a more recently generated location fix than it is to a less recently generated location fix.

25. (Original) The method of Claim 21, estimating a future position fix of the mobile station, evaluating the validity of the location fix for which the

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validity determination is required by determining whether it is within a specified range of the estimated future position fix of the mobile station.

26. (Original) The method of Claim 25, estimating a velocity of the mobile station, defining the specified range based on the estimated velocity and time interval.

27. (Original) A cellular mobile station, comprising:
a satellite positioning system signal reception interface in the mobile station for receiving satellite positioning system signals;
a cellular communications network interface in the mobile station for communicating with a cellular communications network;
an information processor coupled to the satellite positioning system signal reception interface and the cellular communications network interface,
the information processor for evaluating the validity of a satellite positioning system based location fix by comparing it to at least one prior mobile station location fix.

28. (Original) The mobile station of Claim 27, the information processor for determining a network based mobile station location fix based on signal data stored in memory, the information processor for evaluating the

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validity of a satellite positioning system based location fix by comparing it to at least one prior network based mobile station location fix.

29. (Original) The mobile station of Claim 28, the information processor for determining the network based mobile station location fix based on cellular base station signal strength data received by the cellular communications network interface.

30. (Original) The mobile station of Claim 27, the information processor for determining a network based mobile station location fix based on a timing relationship between cellular communication network signals received by the cellular communications network interface, the information processor for evaluating the validity of a satellite positioning system based location fix by comparing it to at least one prior network based mobile station location fix.

31. (Original) The mobile station of Claim 27, the information processor for estimating a future position fix of the mobile station and evaluating the validity of the satellite positioning system based location fix by determining whether it is within a specified range of the estimated future position fix.

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32. (Original) The mobile station of Claim 27, the information processor for evaluating the validity of a satellite positioning system based location fix by determining whether it is within a specified range of at least one prior mobile station location fix.

33. (Original) The mobile station of Claim 27, the information processor for evaluating the validity of the satellite positioning system based location fix by determining whether it is closer to a more recent prior location fix than it is to a less recent prior location fix.

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Request for Reconsideration, Informal Matters, Claims Pending

The Advisory Office Action mailed on 9 September 2004 has been considered carefully. Reconsideration of the claimed invention in view of the amendments above and the discussion below is respectfully requested.

A Request for Continued Examiner has been filed concurrently.

Claims 1-33 are pending.

**Patentability of Claims Over Combinations of Bajikar
With One ore more of Bala, Hill, Yen & Elliot**

Rejection Summary

Claims 1-3 and 12-13 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Publication No. 2002/0198001 (Bajikar).

Claims 4, 6 and 8 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Bajikar in view of U.S. Patent No. 5, 857,155 (Hill).

Claims 7 and 14 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Bajikar in view of Hill and U.S. Patent No. 6, 539,230 (Yen).

Claims 9, 15 and 19 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Bajikar in view of U.S. Publication No. 2002/0068580 (Bala).

Claims 10 and 17 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Bajikar in view of Bala and Yen.

Claim 11 stands rejected under 35 U.S.C. 103 (a) as being unpatentable over Bajikar in view of Bala and Hill.

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Claims 16 and 20 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Bajikar in view of U.S. Publication No. 2002/0198001 (Elliot).

Claim 18 stands rejected under 35 U.S.C. 103 (a) as being unpatentable over Bajikar in view of Yen and Hill.

Claims 27-28, 30 and 32-33 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Bajikar in view of Yen.

Claim 29 stands rejected under 35 U.S.C. 103 (a) as being unpatentable over Bajikar in view of Yen and Hill.

Claim 31 stands rejected under 35 U.S.C. 103 (a) as being unpatentable over Bajikar in view of Yen and Bala.

Examiner's Objection to Declaration Relative to Bajikar Reference

The Examiner contends that that Applicants' seasonally filed Declaration under 37 CFR 1.131 is "ineffective" to overcome the earlier rejections under 35 U.S.C. 102(e) and/or 103(a) based on U.S. Publication No. 2002/0198001 (Bajikar) on the grounds that the "... scope of the declaration ... is not commensurate with the scope of the claims." The Examiner contends specifically that

... the affidavit disclosure describes using a history of measurements (previous location fixes or estimates) to determine the accuracy and develop confidence in the present GPS location fix. The claimed inventions in claims 1 and 12 is for a method to validate a present non-network (GPS) location fix by comparing it to a present network based location fix. The scope of the declaration or affidavit is not commensurate with the scope of the claims.

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Discussion

Claims 1 has been amended to clarify that a prior network based location fix is used to evaluate the validity of the non-network based location fix, and Claim 12 has been amended to clarify that a prior network based location fix is used to evaluate the validity of the satellite positioning system based location fix. The corresponding dependent claims have been amended accordingly.

Independent Claim 1 now reads as follows:

A method for validating a non-network based location fix of a mobile station in a communications network, comprising:
generating a non-network based location fix of the mobile station;
evaluating the validity of the non-network based location fix of the mobile station by comparing the non-network based location fix with a prior network based location fix.

Claim 12 now reads as follows:

A method for validating a satellite positioning system based location fix of a satellite positioning system enabled cellular mobile station in a cellular communications network, comprising:
generating a satellite positioning system based location fix of the mobile station;
evaluating the validity of the satellite positioning system based location fix by comparing the satellite positioning system based location fix to a prior network based location fix.

The scope of the subject invention disclosure is now indisputably commensurate with the scope of the independent Claims 1 and 12 and the

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depending claims. Applicant has resubmitted the Affidavit and a complete copy of the supporting invention disclosure, including original pages 3 and 5 thereof, which appear not to have been transmitted to the Examiner due to a machine malfunction and oversight on the Applicant's part. In view of the amendment and discussion above, kindly withdraw the rejection based upon Bajikar.

Examiner's Objection to Declaration Relative to Elliot Reference

The Examiner contends that that Applicants' seasonally filed Declaration under 37 CFR 1.131 is "ineffective" to overcome the earlier rejections under 35 U.S.C. 102(e) and/or 103(a) based on U.S. Publication No. 2002/0198001 (Elliot). The Examiner alleges curiously that the

... scope of the declaration or affidavit is not commensurate with the scope of the Elliot reference even though the Elliot reference can be interpreted, as cited by the examiner in the Office Action, to read on Claims 16 and 20.

Discussion of Declaration Relative to Elliot Reference

The issue under consideration is whether the invention date predates the effective date, the 35 U.S.C. 102(e) date, of the Elliot reference. The Applicant's Declaration under 37 CFR 1.131 provides factual evidence that the claimed subject matter predates the effective date, (35 U.S.C. 102(e) date) of the Elliot reference. The Examiner appears to concede this point, but asserts that the scope of Applicants' affidavit and the Elliot reference are not commensurate. The scope of the Elliot reference is, however, not at issue since

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Elliot does not qualify as statutory prior art. Kindly withdraw the statutory rejections based upon Bajikar and Elliot.

Allowability of Claims Over Yen & Bala

Rejection Summary

The Examiner maintains the rejection of Claims 21-22 and 24 under 35 USC 102(e) as being anticipated by U.S. Patent No. 6,539,230 (Yen). Office Action, 10 November 2003, para. 3.

Claims 23 and 25-26 stand rejected under 35 USC 103(a) as being unpatentable over Yen in view of U.S. Publication No. 2002/0068580 (Bala). Office Action, 10 November 2003, para. 12.

Discussion of Allowability of Claim 21

Regarding Independent Claim 21, contrary to the Examiner's assertion, Yen fails to disclose or suggest a

... method for validating a location fix of a mobile station, comprising:
generating a plurality of location fixes of the mobile station;
evaluating the validity of a recently generated location fix of the mobile station by comparing the location fix for which the validity determination is required to a previously generated mobile station location fix.

Yen discloses a GPS-enabled mobile station (MS) that determines whether or not to perform a frequency for a new control Channel (DCCH)

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based on movement of the mobile station to a new location (x_n, y_n) relative to a prior location (x_1, y_1) . In Yen, the MS searches for a new DCCH only if it has moved a distance "L" from the prior location. Yen does not disclose "... evaluating the validity of a recently generated location fix of the mobile station by comparing the location fix for which the validity determination is required to a previously generated mobile station location fix." Yen assumes that the new location computation is accurate. Yen uses the prior location as a reference with which to measure the distance traveled to the new location. Claim 21 and the claims that depend therefrom are thus patentably distinguished over Yen.

Discussion of Allowability of Claim 22

Regarding Claim 22, dependent from Claim 21, Yen fails to disclose or suggest in combination with the limitations of Claim 21;

... evaluating the validity of the location fix for which the validity determination is required by determining whether it is within a specified range of the previously generated location fix.

Yen does not disclose or suggest evaluating the validity of a location fix based on one or more prior location fixes. As noted, Yen assumes that the present location fix is valid and uses it to determine whether or not to scan for a new DCCH. Claim 22 is thus further patentably distinguished over Yen.

Discussion of Allowability of Claim 23

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Regarding Claim 23, dependent from Claim 22, Yen fails to disclose or suggest in combination with the limitations of Claim 21,

... defining the specified range based on an estimated velocity of the mobile station and a time variable.

The Examiner concedes that Yen does not disclose defining an "... estimated range based on estimated velocity of the mobile station and a time variable..." but alleges that the "... Bala reference teaches 'a subscriber's likely current location could be determined, at least in part, based on the subscriber's last location, the speed and direction of travel of the subscriber and the time when the subscriber's last location was confirmed.'" Office Action, 10 November 2003, para. 12.

The determination of location (as allegedly disclosed by Bala) is not the same as "...defining the specified range based on an estimated velocity of the mobile station and a time variable" as recited in Claim 23. Yen and Bala also fail to disclose or suggest the limitations of Claims 21 and 22, from which Claim 23 depends. Claim 23 is thus further patentably distinguished over Yen and Bala.

Discussion of Allowability of Claim 24

Regarding Claim 24, dependent from Claim 21, Yen fails to disclose or suggest in combination with the limitations of Claim 21,

... evaluating the validity of the location fix for which the validity determination is required by determining whether it is closer to a

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more recently generated location fix than it is to a less recently generated location fix.

Yen does not disclose or suggest determining whether a presents location fix is nearer to a more recently generated location fix than it is to a less recently generated location fix. Yen assumes that the present location fix is valid and uses it to determine whether or not to scan for a new DCCH. Claim 24 is thus further patentably distinguished over Yen.

Discussion of Allowability of Claim 25

Regarding Claim 25, dependent from Claim 21, Yen fails to disclose or suggest in combination with the limitations of Claim 21,

... estimating a future position fix of the mobile station, evaluating the validity of the location fix for which the validity determination is required by determining whether it is within a specified range of the estimated future position fix of the mobile station.

The Examiner concedes that Yen does not disclose the limitations of Claim 25, but assert that the "... Bala reference teaches 'a subscriber's likely *current location* [emphasis supplied] could be determined, at least in part, based on the subscriber's last location, the speed and direction of travel of the subscriber and the time when the subscriber's last location was confirmed." Office Action, 10 November 2003, para. 12. Bala teaches determining current location as italicized above, not "future" location as recited in Claim 25. Claim 25 is thus further patentably distinguished over Yen and Bala.

Discussion of Allowability of Claim 26

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Regarding Claim 26, dependent from Claim 25, Yen fails to disclose or suggest in combination with the limitations of Claim 25,

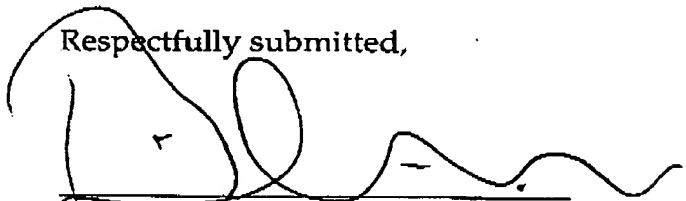
... estimating a velocity of the mobile station, defining the specified range based on the estimated velocity and time interval.

The determination of location (as allegedly disclosed by Bala) is not the same as "... defining the specified range based on an estimated velocity and time variable" as recited in Claim 26. Yen and Bala also fail to disclose or suggest the limitations of Claims 21 and 25, from which Claim 26 depends. Claim 26 is thus further patentably distinguished over Yen and Bala.

Pray For Relief

In view of the amendments and the discussion above, the Claims of the present application are in condition for allowance. Kindly withdraw any rejections and objections and allow this application to issue as a United States Patent without further delay.

Respectfully submitted,



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